

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**LED light source characteristics –
Part 2: Design parameters and values**

**Caractéristiques de source lumineuse à LED –
Partie 2: Paramètres et valeurs de conception**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**LED light source characteristics –
Part 2: Design parameters and values**

**Caractéristiques de source lumineuse à LED –
Partie 2: Paramètres et valeurs de conception**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.140.99

ISBN 978-2-8322-5888-0

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 Overview and common information	8
4.1 General.....	8
4.2 Numbering system	8
5 Rectangular LED modules with undefined light emitting surface.....	8
5.1 General.....	8
5.2 Mechanical references	8
5.3 LED module categories	9
5.3.1 General	9
5.3.2 L6W6.....	9
5.3.3 L14W2.....	11
5.3.4 L28W2.....	12
5.3.5 L28W4.....	13
5.3.6 L28W6.....	14
5.3.7 L28W28.....	15
5.3.8 L38W38.....	17
5.3.9 L56W56.....	19
5.3.10 L56W2.....	21
5.3.11 L56W4.....	22
5.3.12 L112W2.....	23
5.3.13 L115W2.....	25
5.3.14 L140W2.....	27
5.3.15 L145W2.....	29
5.3.16 L30W1.....	31
5.3.17 L58W1.....	32
5.3.18 L115W1.....	33
5.3.19 L145W1.....	34
Bibliography.....	35
Figure 1 – Example of a luminaire with two LED modules	8
Figure 2 – Positions of the reference point and the reference plane of the LED module	8
Figure 3 – LED module demarcation of the L6W6 category	10
Figure 4 – LED module demarcation of the L14W2 category	11
Figure 5 – LED module demarcation of the L28W2 category	12
Figure 6 – LED module demarcation of the L28W4 category	13
Figure 7 – LED module demarcation of the L28W6 category	14
Figure 8 – LED module demarcation of the L28W28 category	16
Figure 9 – LED module demarcation of the L38W38 category	18
Figure 10 – LED module demarcation of the L56W56 category	20
Figure 11 – LED module demarcation of the L56W2 category	21
Figure 12 – LED module demarcation of the L56W4 category	22

Figure 13 – LED module demarcation of the L112W2 category	24
Figure 14 – LED module demarcation of the L115W2 category	26
Figure 15 – LED module demarcation of the L140W2 category	28
Figure 16 – LED module demarcation of the L145W2 category	30
Figure 17 – LED module demarcation of the L30W1 category	31
Figure 18 – LED module demarcation of the L58W1 category	32
Figure 19 – LED module demarcation of the L115W1 category	33
Figure 20 – LED module demarcation of the L145W1 category	34
Table 1 – LED module demarcation of the L6W6 category	9
Table 2 – LED module demarcation of the L14W2 category	11
Table 3 – LED module demarcation of the L28W2 category	12
Table 4 – LED module demarcation of the L28W4 category	13
Table 5 – LED module demarcation of the L28W6 category	14
Table 6 – LED module demarcation of the L28W28 category	15
Table 7 – LED module demarcation of the L38W38 category	17
Table 8 – LED module demarcation of the L56W56 category	19
Table 9 – LED module demarcation of the L56W2 category	21
Table 10 – LED module demarcation of the L56W4 category	22
Table 11 – LED module demarcation of the L112W2 category.....	23
Table 12 – LED module demarcation of the L115W2 category.....	25
Table 13 – LED module demarcation of the L140W2 category.....	27
Table 14 – LED module demarcation of the L145W2 category.....	29

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LED LIGHT SOURCE CHARACTERISTICS –

Part 2: Design parameters and values

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63356-2 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
34A/2298/FDIS	34A/2313/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 63356 series, published under the general title *LED light source characteristics*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

This document is a preview generated by EVS

INTRODUCTION

The IEC 63356 series – (LED light source characteristics) is split into two parts:

- Part 1: Data sheets

The scope of Part 1 covers data sheets that are comprehensive specifications for unique LED light sources (LED lamp or LED module). These are full specifications for products including, where necessary, information on interchangeability aspects, for example mechanical, electrical, optical.

Each data sheet in Part 1 relates to an individual type of LED lamp or LED module.

- Part 2: Design parameters and values

The scope of Part 2 covers design parameters and values that are used in the design of an LED light source (LED lamp or LED module) or a related component. Part 2 does not provide full product specifications but includes important interface aspects (e.g. mechanical, electrical, optical) that should be taken account of in the design of LED light sources and related components.

This document is a preview generated by EVS

LED LIGHT SOURCE CHARACTERISTICS –

Part 2: Design parameters and values

1 Scope

This part of IEC 63356 specifies design parameters and design values of an LED light source or related interface characteristics.

NOTE 1 Interface characteristics can cover interfaces between the LED light source and the luminaire or the controlgear, or the LED light source and additional attachments.

NOTE 2 Interfaces can be related to for example electrical, mechanical, or optical aspects.

This document does not cover interchangeability between products from different LED light source manufacturers.

NOTE 3 Interchangeability is covered by IEC 63356-1.

Lamp caps and lampholders specified in the IEC 60061 series are not within the scope of this document.

Compliance criteria relating to parameters in this document are covered by IEC 63220¹ for safety, or IEC 63221² for performance.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

thermal interface material

TIM

material with specified thermal conductivity assembled between an LED module and a luminaire to enable improved heat dissipation

¹ Under consideration.

² Under consideration.